

# DSE's new VZ300: word processing for the masses

*With stocks of the popular \$99 VZ200 personal computer now virtually exhausted, DSE has announced a substantially upgraded replacement, model VZ300. It will have its own special appeal to computer enthusiasts but, as well, it opens up a whole range of options as the basis of a relatively inexpensive word processing system.*

by NEVILLE WILLIAMS

My first encounter with the original VZ200 was when I took one along on a holiday and, rather than overdo the relaxation bit, I coupled it to a TV set in the flat and worked my way through the manuals. In the process, I realised its potential tutorial value, which became even more apparent when the original \$199 purchase price was later reduced to \$99.

Subsequently DSE came up with an excellent cassette-based word processing

program, written for the VZ200 by Messrs Epps and Fackerell. On screen, it provided means to compose text in takes of up to 15,042 characters, and to freely correct, delete, insert or shuffle words, phrases or paragraphs, rearrange copy, etc, using simple, easy to remember commands.

The copy could be stored on cassette tape or fed to a printer as a normal mix of capital and lower case letters, numerals, symbols and punctuation

marks. There was provision to specify the length and width of print, left and right margins, indents, columns, right-hand justification, etc.

It added up to a modest but practical word processor for about \$550 all up, and still under \$1000 with a more pretentious printer. (See "Forum" for November '84.)

The exercise served to introduce quite a few people to the advantages of word processing and to whet their appetite for something more ambitious — an option which the new VZ300 opens up. But, first, we summarise what it offers as a basic personal computer.

While quite obviously developed from the earlier model, the VZ300 is somewhat larger overall at 305(W) × 183(D) × 63(H)mm. It is housed in a moulded plastic case, grey-green in colour, with peripherals to match.

Like the VZ200, it has an on-off switch at the right-hand end, and sockets at the rear for a plug-pack power supply, for video out and RF out (TV channels 0-1) and for cassette tape in-out. Also at the rear are ports for a floppy disk controller and/or optional expansion



The VZ300 Computer with the DOS (disk operating system) cartridge plugged in at the rear. It, in turn, has a "piggyback" socket for RAM or ROM modules. On the right is the VZ300 Floppy Disk Drive.

memory, etc, and a Centronics type printer interface.

The most obvious difference is the keyboard, which now has proper keys and a normal space bar, instead of the flat "rubber" pads fitted to the earlier model. They certainly look more professional and lend themselves to a higher typing speed. In action and "feel", the keyboard is much the same as found in other modestly priced PCs.

Inevitably, perhaps, the larger keys have crowded out the "Function" legends which appeared below the pads on the earlier model. The functions are still active and accessed by the same keys but now need to be memorised, or identified with the aid of a separate card. In practice, they are not used all that much.

A further omission is the colour coding above the numeral keys but this could presumably be corrected in due course with a suitable adhesive label.

Accessible through the bottom of the housing is a small colour/B&W slide switch — a welcome provision, when used with a monochrome monitor. With the original VZ200, the 3.58MHz clock signal could in some cases, produce a noticeable interference pattern.

It was usually not troublesome on a receiver/monitor because of the limited passband of the RF link, but it could be objectionable on a wideband monitor, unless attenuated by a 3.5MHz low pass filter in the video line.

Provision of the colour disable switch and a claimed small shift in the clock frequency appears to have considerably reduced the problem.

Internally, the layout has been completely revised to accommodate everything on a single board, with due attention to ventilation and to minimising possible hot spots in the circuitry.

A notable improvement is a substantial increase in in-built user RAM (random access memory) — from 6K for the VZ200 to 16K in the new model. This should be adequate for many purposes but external memory expansion modules in the VZ300 range of options can at least double this — an observation which calls for further explanation.

### Compatible or not?

From the viewpoint of compatibility, the good news is that the Microsoft Basic II ROM is essentially the same in both models, so that software for (and from) the VZ200 should work with the VZ300 — and it does, to the extent that we have been able to verify. The printer/plotter, Centronics printer interface, cassette recorder and joysticks for the VZ200 also appear to be compatible.

The same cannot be said, however, for the memory expansion modules, mainly because of the manufacturer's decision to provide more internal user RAM in the new model. It has meant that the top address for the internal RAM (therefore the starting address in the matching extension unit) is nominally 10,000 higher in the case of the VZ300 than it is for the older model.

If the VZ200 extension unit is plugged into the VZ300, it will function but will provide only the same total memory space as for the VZ200: 22K. This comes about because it uses the same starting address in both models, simply overlapping the upper 10K of the VZ300.

It still means, however, that if you have the opportunity to trade up to the new keyboard, you can plug in the old 16K expansion memory and carry right on — until you can spare \$69 for the right one and the extra 10K of memory.

With its own 16K expansion module, the VZ300 provides a nominal 32K of user RAM. It is important to note, however, that the new VZ300 module will not work at all in the older model. Because of the 10K gap between the finishing and starting addresses, the VZ200 won't even know that the module is aboard!

A 64K expansion module is also available but at \$149 is debatable value. The point behind this is that the BASIC Interpreter in both models (VZ200 and VZ300) can only cope directly with 34K of RAM so that, for normal BASIC programming, only 34K of RAM can be effective — so the 64K module gives a potential increase of 2K for \$70!

In machine language, additional 16K banks in the 64K module can be

independently selected by programming, but the facility is not available in BASIC. Curiously, the 64K cartridge would probably offer better value if used in conjunction with the VZ200, providing the same 34K of RAM — a significant increase over the previously available 6K or 22K.

While final stocks of the VZ200 were cleared at a quite low figure, the fact remains that, two years ago or more, it was hailed as a "breakthrough" at \$199 for such a powerful small computer.

Now, despite rising costs, the VZ300 comes in at that same figure, with a much superior keyboard, more than double the amount of user RAM, other refinements and provision for a wider range of expansion peripherals, including a completely new disk drive and controller, described later in the article.

That must surely add up to a very attractive proposition for budget conscious PC enthusiasts.

### As a word processor

With the release of the VZ300, it should be possible for anyone who has been using a basic word processing system, as mentioned earlier, simply to substitute the improved keyboard and carry right on.

In fact, by way of verification, this portion of the article is being prepared on just such a system: VZ300, an existing 16K expansion unit, DSE data cassette recorder, E&F (Epps and Fackerell) W/P program, printer interface and printer, and a "Princess" B&W TV receiver. It works well!

If setting up such a system for the first time it would, of course, be logical to purchase peripherals to suit the VZ300, partly in the interest of styling and colour, but also to ensure a full 32K of memory is available for possible future requirements.

Certain points are worth noting, however, in seeking to plan ahead for word processing facilities.

1. The VZ300, as is, will load the E&F program with memory space to spare but it will not work correctly by reason of certain "bugs". As with the VZ200, a 16K expansion module is essential.

2. The E&F program was written specifically for the VZ200 and is limited internally to 15,042 characters at a time — about the length of a 3-page article in this magazine. In its present form, it will not take advantage of the extra memory space.

3. The E&F program currently makes no provision to talk to the new DSE floppy disk memory store. If planning to buy a disk system, it will be necessary to

### Format conversion tape

To assist those who have accumulated cassette files compiled with the E&F word processor program, DSE have prepared a conversion cassette allowing them to be changed to the new ROM format.

The conversion tape is fed into the VZ300 (or VZ200) with extension RAM in ordinary BASIC configuration, using CLOAD. When RUN, it reads the computer to receive and re-format the E&F file and displays the relevant instructions on the screen.

When the E&F file has been loaded and duly processed (the text is not displayed) it can be Saved on cassette, and can then be fed directly into a ROM format word processor, where it can be displayed, checked and re-edited if necessary.

# DSE's new VZ300



The VZ300 is slightly larger overall than the earlier model but has a much better keyboard with normal space bar.

select an appropriate word processing program, such as the one that is now available on ROM (read only memory) pack.

In planning a replacement word processor program, DSE decided that it should be on ROM rather than on tape, to avoid the 90-second routine of having to load it on each occasion prior to use. However, instead of adapting the existing E&F program, they had a completely new one prepared by Messrs Dubois and McNamara, identified as the VZ300 Word Processor.

It is mounted in a plastic case similar to that used for the extension memory and plugs into the same socket. At switch-on, the Command menu appears on the screen with the options: Edit, Print, Clear Text, Disk Commands and Tape Commands. As such, it is ready for immediate use.

Fairly obviously, with the ROM occupying the extension socket, text can be stored only in the computer's internal RAM. This presents no problem in the VZ300, which can accommodate 15,564 characters at any one time — marginally more than the 15,042 available with the E&F program.

The ROM is also functionally compatible with the original VZ200 but, because of its limited (6K) internal RAM, only 5324 bytes can be accommodated at once. Except for correspondence and short articles, the user would be heavily dependent on tape or disk storage.

The new VZ300 word processor has more on-screen edit provisions than the E&F program and, at first glance, might appear to be more difficult to memorise and to use. Perhaps it is, but not by all that much — especially if one makes up a simple guide card, as illustrated.

As with most such programs, the newcomer is well advised to concentrate initially on facilities which they prefer or need to use and to assimilate the remainder only as necessary. Personally, after having used the E&F program for some time, I found no difficulty in adapting to the new one.

On a monochrome monitor, the characters normally appear dark against a lighter background, with capital letters reversed. Up to twelve 32-character lines can be accommodated on the screen at a time, with operating mode information along the top, as appropriate.

For composing and editing text, the

program provides the usual facilities to move the cursor to any desired point on the screen or in the text. Alternative edit modes are available by pressing Control (9): Mode A which allows errors to be simultaneously over-typed and obliterated; Mode B, which allows characters or text to be deleted or inserted, the rest of the text being shuffled automatically to accommodate the changes.

For major insertions — new text or from disk or tape files — the cursor can be placed at the desired point and the display flipped to Insert mode by using Control(0). The new copy can then be composed, displayed and checked out on an otherwise blank screen and will be inserted at the designated point in the main text upon return to Edit mode.

A block marker is available to designate blocks of text to be moved, copied or deleted, while there is also provision to search for and change designated "strings" (words, etc) up to 16 characters long. While all this is going on an FM (Free Memory) display indicates how much memory space is still available at any time.

Of note also is the provision for TAB stops, which can be set and cancelled as required, with their positions indicated at top and bottom of the screen. The most obvious single use is to provide an Inset at the beginning of each new paragraph, obtained simply by typing Control(T).

As indicated earlier, the main Command Menu has provision to Clear Text (with a Yes/No precaution) and other separate sub-menus to do with Print, Disk and Cassette.

## Cassette commands

Of these, the cassette facility is the least complicated. It provides for: (1) Save; (2) Load; (3) Merge; (4) Verify; (5) Return to main menu. The Load function calls for special comment, in that it replaces existing text in the memory and is therefore protected by a Y/N query. To add to existing text, as in Insert mode, the Merge command must be used.

The Verify command provides means to ensure that text has actually been saved but I missed the character count that is provided on the E&F program. Neither program has provision for directly cueing the cassette deck, which must be switched manually to the required function.

The VZ300 disk storage system is completely new and has the added advantage of being compatible with the older VZ200, thereby significantly increasing its potential. At around \$330 all-up, disk is admittedly more expensive

## VZ300 — BASIC SPECIFICATIONS

Processor/speed	Z-80/3.54MHz
Internal ROM	16K
Internal user RAM	16K
Keyboard	46 keys, typewriter format
Text format	32 cols, 16 lines
Graphics format	64 x 32, 128 x 64
Colours	8/9
Input/output (in-built)	video, RF (TV 1&2), cassette
Cassette data rate	600 baud
Power pack (supplied)	12V/1A (nominal)



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to install and operate than a cassette system, and somewhat more accident prone for the newcomer, but it can save and load files in less than a tenth of the time it takes with cassette.

Three items of hardware are involved: a disk controller cartridge containing the DOS (Disk Operating System), the disk drive unit itself, and a dual power supply adapter for the drive unit, providing 5V and 12V at 0.7A.

The controller cartridge is designed to plug into the expansion socket on the back of the VZ300 (or VZ200) and draws its supply from the computer. In turn, it carries a "piggyback" expansion socket, which can accept the module which would otherwise be displaced — typically a 16K RAM or, in the present context, the new VZ300 word processor ROM.

The twin pack is only about one centimetre taller than the computer itself and could typically slide out of sight under the monitor.

At the rear of the controller cartridge are two 20-pin sockets, marked D1 and D2, each capable of accommodating a cable and plug connection from a disk drive. I only had one drive unit available (normally plugged into D1) but the system can accommodate two, if desired, each with its own separate power supply.

The drive unit, colour matched to the VZ300, measures a modest 190(W) × 70(H) × 260(D)mm and, apart from the

disk "door" at the front, has no user knobs or switches. It is entirely software controlled from the computer, the details depending on the program in use, viz: BASIC or Word Processor.

I used it with standard 5-inch single-sided, soft sector disks but I gather that it works quite happily with the hard sector variety. The signal storage format is 40 tracks, each with sixteen 128-byte sectors. This works out at 624 sectors for a total storage of 78K bytes per single sided disk.

My observations with the disk store were primarily in the context of word processing and, as such, it gave no hint of bother. I simply connected it up, as per instructions, inserted a disk, switched on and waited expectantly but in vain for any reaction. None came until I pressed (D) in the main menu, for Disk Commands. Then it happened as per the user manual: strange noises and a red indicator light, indicating that it was poised for action!

The on-screen disk menu provides for: INITIATE: Formatting a new disk with information relating to the word processor program.

DIRECTORY: A list of the files on the disk and the number of tracks available for further storage (up to 39 tracks at 2K each).

SAVE TEXT: A file name is called for, comprising up to eight characters, the first of which must be a letter of the

alphabet.

LOAD TEXT: Subject to Y/N query. Use of the load function will replace text already in memory.

MERGE TEXT: Used to transfer text from disk file to a designated point in memory, without destroying it.

KILL TEXT FILE: Used to delete unwanted individual files from a disk.

RETURN TO MAIN MENU.

As with most new facilities, it may take a while for the newcomer to become confident with disk storage but the relative simplicity of the VZ300 system and the above menu, should ensure a head start.

How to use and organise disk facilities to advantage is probably best worked out in the light of individual needs and experience. Accepted wisdom is ultimately to install twin disk drives so that working files can be transferred to back-up disks as a precaution against accidental loss, and for long term storage.

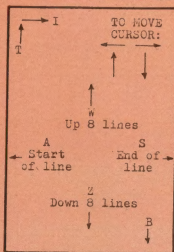
For anyone just graduating from cassette facilities, it would probably make sense to use the single disk system as a working store, transferring completed files to cassette for long-term (and inexpensive) storage.

## Print facility

Unlike Tape and Disk, the Print facility provided by the new VZ300 Word Processor does not use a separate

### SUMMARY OF COMMANDS - E&F

#### USE CTRL KEY

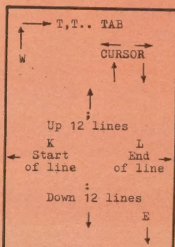


For question mark, slashes, square brackets, use SHIFT + CTRL

F find; R find/replace; L repeat F/R

### SUMMARY OF COMMANDS - ROM

#### USE CTRL KEY



For question mark use: 2 and CTRL  
For oblique slash use: 1 and CTRL  
To insert spaces in text: 1 and O  
S Search for string. C search, replace

Typical home-made prompt cards for the E&F program (left) and the new ROM program (right). They contain most of the commands used for composing on-screen text and are helpful both for learners and for anyone needing to use more than one program.

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menu, even though it involves a dozen or so potential control instructions for a typical, unpretentious printer. Unless the user has a good memory, he/she will probably have to rely on a prompt card to avoid errors and omissions.

Print instructions, preceded by a print marker, must be typed on to the screen ahead of the relevant text, giving directions as to page numbering, page length, margins, indent, justification, centring, page feed, line feed, line spacing, etc.

If desired, modified instructions can be included at points in the text, between pages or paragraphs, to change any of the relevant parameters — instructions that could be assembled and inserted very conveniently, using the Insert/Edit facility.

One of the options — D=Send to Printer (Y/N) — allows the text to be processed and inspected on screen, with selected portions being either printed or not printed, as desired.

It is also possible to print over-long documents direct from tape file or disk file, using the computer memory as a buffer.

## EXPANSION OPTIONS

- 16K memory expansion RAM
- 64K memory expansion RAM
- Twin joysticks & interface
- Data cassette recorder
- Disk drive & power adaptor
- Disk controller cartridge
- Centronics type printer interface
- Printers, as required
- Word processor ROM (see text)
- Word processor cassette
- Format conversion tape
- Assorted software

Last but not least, a command N = ... allows numbers to be sent direct to a suitably responsive printer, to control a variety of possible parameters to do with print face, line spacing, etc. The ultimate usefulness of this provision will, of course, depend on the printer selected.

Instructions relating to the new ROM-based word processor are in the course of preparation, being available only in draft form when we were putting the system through its paces. Indeed, in the process, we were able to make a number of hopefully constructive suggestions.

But, to sum up, if you're looking for a personal computer that doesn't cost the proverbial "arm and a leg", with word processing options that fit the same description, DSE's new VZ300 warrants close consideration.



Alan Mulraney, Stott's Graduate, in his workshop.

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